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CASE REPORT

Neurocysticercosis, a case report

Neurocisticercosis, reporte de un caso

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ABSTRACT

Introduction: neurocysticercosis is a central nervous system infection caused by the larva of Taenia solium, which can lead to significant neurological symptoms such as headaches and seizures. This clinical case describes a 30-year-old male agricultural worker presenting symptoms consistent with this disease.
Case report: the 30-year-old patient presents with recurrent episodes of intense headaches and seizures, specifically involuntary movements in his left leg, accompanied by confusion and disorientation. His medical history is healthy, but he has consumed undercooked pork, which may have facilitated disease transmission. A computed tomography (CT) scan reveals multiple cysts in the brain, and serology for antibodies against T. solium is positive, confirming the diagnosis of neurocysticercosis.
Conclusions: the treatment of neurocysticercosis should be individualized, combining antiparasitics like albendazole and corticosteroids to manage inflammation. Education on prevention, especially regarding pork consumption, is crucial to reduce the incidence of this disease.

KEYWORDS

Cysticercosis; Neurocysticercosis; Taenia Solium; Treatment.

RESUMEN

Introducción: la neurocisticercosis es una infección del sistema nervioso central producida por una infección por Taenia solium en su estado larvario, esta infecciones provoca síntomas neurológicos de gran significación como cefalea y convulsiones. Este caso clínico describe a un paciente masculino de 30 años, trabajador agrícola, que presenta síntomas compatibles con esta enfermedad.
Reporte de caso: el paciente, de 30 años, se presenta con episodios recurrentes de cefalea intensa y convulsiones, específicamente movimientos involuntarios en la pierna izquierda, acompañados de confusión y desorientación. Su historial médico es sano, pero ha consumido carne de cerdo poco cocida, lo que puede haber facilitado la transmisión de la enfermedad. La tomografía computarizada (TAC) revela múltiples quistes en el cerebro, y la serología para anticuerpos contra T. solium resulta positiva, confirmando el diagnóstico de neurocisticercosis.
Conclusiones: el tratamiento de la neurocisticercosis debe ser individualizado, combinando antiparasitarios como albendazol y corticosteroides para manejar la inflamación. La educación sobre la prevención, especialmente en el consumo de carne de cerdo, es crucial para reducir la incidencia de esta enfermedad.

PALABRAS CLAVE

Cisticercosis; Neurocisticercosis; Taenia Solium; Tratamiento.

INTRODUCTION

Cysticercosis is a parasitic infection caused by the larva of Taenia solium. This infection occurs when humans ingest T. solium eggs through food or water contaminated with human feces containing the parasite eggs. The eggs hatch in the intestine and release oncospheres that can migrate to various tissues in the body, where they develop into cysticerci or encysted larvae. Cysticercosis can affect multiple organs but is of particular concern when it involves the central nervous system, a condition known as neurocysticercosis.[1]

Neurocysticercosis is the most severe form of cysticercosis and is a significant cause of epilepsy and other neurological diseases worldwide. It is endemic in regions of Latin America, sub-Saharan Africa, and parts of Asia but is also found in developed countries due to immigration and international travel.[2]

Neurocysticercosis can present with various clinical manifestations, depending on the location and status of cysticerci in the brain. The most common manifestations include seizures, headaches, and signs of intracranial hypertension, such as obstructive hydrocephalus.[3]

The diagnosis of neurocysticercosis is based on neuroimaging findings, such as computed tomography (CT) or magnetic resonance imaging (MRI), which may show viable cysts, degenerative cysts, and calcifications. Serological tests can support the diagnosis, although their availability and accuracy may be limited.[1,4]

Treatment of neurocysticercosis should be individualized and depends on the location, number, and stage of cysts, as well as the host's inflammatory response. The clinical guidelines of the Infectious Diseases Society of America (IDSA) and the American Society of Tropical Medicine and Hygiene (ASTMH) recommend a combination of symptomatic and antiparasitic treatment.[4]

Antiparasitic drugs such as albendazole and praziquantel are commonly used, often in combination with corticosteroids, to manage associated inflammation. The American Academy of Neurology also provides specific guidelines for treating parenchymal neurocysticercosis, emphasizing the importance of anti-cysticercal therapy at the vesicular and colloidal stages of the cysts.[5,6]

The present work describes a case of left atrial myxoma in a 62-year-old male patient. The main objective is to contribute to its timely diagnosis by exposing the details of this patient.

CASE REPORT

A 30-year-old male patient of rural origin and agricultural worker presents to the medical office with recurrent episodes of severe headaches that have become more frequent in the last few weeks. In addition, he mentions that he has experienced episodes of seizures, specifically involuntary movements in his left leg, which are accompanied by temporary confusion and disorientation. His medical history is remarkably healthy, with no history of relevant chronic illnesses. However, his occupation has exposed him to conditions that could have facilitated disease transmission.

Symptoms began approximately two months ago, initially as occasional headaches, but in the last week, they have become almost constant, describing them as throbbing and localized in the frontal region. The seizures, which began approximately three weeks ago, occur sporadically and have caused a significant impact on her daily life.

Regarding his social history, the patient lives with his wife and two young children. His diet includes pork, and he admits that he has consumed meat products that were not fully cooked on several occasions. He has no family history of significant neurologic disease.

On physical examination, he appears conscious and alert, although visibly anxious. His blood pressure is 130/85 mmHg, and his heart rate is within normal limits. There are no apparent focal deficits on neurological examination, but a slight neck stiffness is noted. The rest of the physical examination reveals no significant findings.

A computed tomography (CT) scan of the skull is ordered to evaluate the brain lesions. The results show multiple cysts in the brain parenchyma, some with peripheral enhancement after contrast administration, which indicates neurocysticercosis. Additionally, serology for antibodies against Taenia solium was performed and was positive.

Based on the clinical history, the physical examination findings, and the results obtained from the complementary studies, the diagnosis of neurocysticercosis is established. This condition is a consequence of infection by Taenia solium larvae, which has led to the formation of cysts in the central nervous system.

Treatment with albendazole and corticosteroids is initiated to control brain inflammation and reduce neurological symptoms. Patient education is provided on the importance of avoiding the consumption of raw or undercooked pork consumption, and instruction is given on hygiene measures to prevent future infections.

Six weeks after initiation of treatment, the patient reports a marked improvement in his symptoms. The frequency and intensity of headaches have significantly decreased, and he has not presented new seizure episodes. A new CT scan is scheduled to evaluate the evolution of the cystic lesions.

DISCUSSION

Neurocysticercosis is an infection of the central nervous system caused by Taenia solium larvae. This clinical case describes a 30-year-old male patient, a farm worker from a rural area, who presented with recurrent severe headaches and seizures. A history of undercooked pork consumption and a CT scan revealing multiple cysts in the brain, along with positive serology for antibodies to T. solium, are indicative of neurocysticercosis.

The patient probably acquired the infection by consuming undercooked pork containing cysticerci or through ingestion of T. solium eggs present in food or water contaminated with human feces. The eggs hatch in the intestine and release oncospheres that penetrate the intestinal wall and migrate through the bloodstream to various tissues, including the brain, where they develop into cysticerci.[1,7]

Neurocysticercosis is a significant cause of epilepsy and other neurological diseases in endemic regions such as Latin America, sub-Saharan Africa, and parts of Asia. Infection occurs when humans ingest T. solium eggs through contaminated food or water. The eggs hatch in the intestine and release oncospheres that can migrate to various tissues, including the brain, where they develop into cysticerci.[8,9]

Cysticerci can remain viable for years in the brain without causing significant symptoms due to relative host immune tolerance. However, when cysticerci begin to degenerate, a massive release of parasitic antigens triggers an intense host inflammatory response. This inflammatory response is responsible for neurological symptoms, such as seizures and severe headaches.[1,7]

Neuroimaging, such as CT or magnetic resonance imaging (MRI), reveals cysts in different stages of development: vesicular (viable cysts), colloidal (degenerating larvae), granulonodular (thickened cyst membrane), and calcified. [10,11] Cysts in the vesicular and colloidal stages most commonly cause symptoms due to inflammation and cerebral edema.[11,12]

According to the clinical guidelines of the Infectious Diseases Society of America (IDSA) and the American Society of Tropical Medicine and Hygiene (ASTMH), albendazole is given at a dose of 400 mg twice daily for 8 to 30 days, depending on the patient's weight and severity of infection. Corticosteroids, such as prednisone, are used concomitantly to prevent episodes of cerebral hypertension and other neurological symptoms caused by the inflammatory reaction to parasite death.[13]

CONCLUSIONS

A deeper understanding of the processes involved in parasite degeneration and clearance, as well as the mechanisms that cause damage to the surrounding neural tissue, should result in improved clinical outcomes and, potentially, prevention of epileptogenesis. Similarly, analysis of antigen-antibody interactions, or assessment of parasite DNA, along with determining appropriate therapeutic levels of the most commonly used antiparasitic drugs, could facilitate better monitoring of disease progression and more precise therapy adjustment. However, on a broader level, public health professionals and decision-makers should aim to eliminate and possibly eradicate taeniasis/cysticercosis caused by Taenia solium.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

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